

Vitamin D determines severity in COVID-19 so government advice needs to change

May 12 2020



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Researchers from Trinity College Dublin are calling on the government in Ireland to change recommendations for vitamin D supplements

A new publication from Dr. Eamon Laird and Professor Rose Anne Kenny, School of Medicine, and the Irish Longitudinal Study on Ageing (TILDA), in collaboration with Professor Jon Rhodes at University of Liverpool, highlights the association between [vitamin D](#) levels and mortality from COVID-19.

The authors of the article, just published in the *Irish Medical Journal*, analysed all European adult population studies, completed since 1999, which measured vitamin D and compared vitamin D and death rates from COVID-19. The article can be viewed at: imj.ie/irish-medical-journal-may-2020-vol-113-no-5/

Vitamin D is produced in the skin from UVB sunlight exposure and is transported to the liver and then the kidney where it is changed into an active hormone that increases calcium transport from food in the gut and ensures calcium is adequate to keep the skeleton strong and free of osteoporosis.

But vitamin D can also support the immune system through a number of immune pathways involved in fighting SARS2-COV. Many recent studies confirm the pivotal role of vitamin D in viral infections.

This study shows that, counter intuitively, countries at lower latitude and typically sunny countries, such as Spain and Northern Italy, had low concentrations of vitamin D and high rates of vitamin D deficiency. These countries also experienced the highest infection and death rates in Europe.

The northern latitude countries of Norway, Finland and Sweden, have higher vitamin D levels despite less UVB sunlight exposure, because supplementation and fortification of foods is more common. These Nordic countries have lower COVID-19 infection and death rates. The correlation between low vitamin D levels and death from COVID-19 is

statistically significant.

The authors propose that, whereas optimising vitamin D levels will certainly benefit bone and muscle health, the data suggests that it is also likely to reduce serious COVID-19 complications. This may be because vitamin D is important in regulation and suppression of the inflammatory cytokine response, which causes the severe consequences of COVID-19 and 'acute respiratory distress syndrome' associated with ventilation and death.

Professor Rose Anne Kenny said, "In England, Scotland and Wales, public health bodies have revised recommendations since the COVID-19 outbreak. Recommendations now state that all adults should take at least 400 IU vitamin D daily. Whereas there are currently no results from randomised controlled trials to conclusively prove that vitamin D beneficially affects COVID-19 outcomes, there is strong circumstantial evidence of associations between vitamin D and the severity of COVID-19 responses, including death."

"This study further confirms this association. We call on the Irish government to update guidelines as a matter of urgency and encourage all adults to take supplements during the COVID-19 crisis. Deficiency is frequent in Ireland. Deficiency is most prevalent with age, obesity, in men, in ethnic minorities, in people with diabetes, hypertension and in nursing homes."

Dr. Eamon Laird added, "Here we see observational evidence of a link of vitamin D with mortality. Optimising vitamin D intake to public health guidelines will certainly have benefits for overall health and support immune function. Research like this is still exploratory and we need further trials to have concrete evidence on the level of vitamin D that is needed for optimal immune function. However, studies like this also remind us how low our vitamin D status is in the population (even in

sunny countries) and adds further weight to some sort of mandatory vitamin D fortification policy. If the Nordic countries are allowed to do this, there is no reason Ireland, the UK or rest of Europe can't either."

More information: imj.ie/irish-medical-journal-may-2020-vol-113-no-5/

Provided by Trinity College Dublin

Citation: Vitamin D determines severity in COVID-19 so government advice needs to change (2020, May 12) retrieved 10 April 2024 from <https://medicalxpress.com/news/2020-05-vitamin-d-severity-covid-advice.html>

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